Strand Name	Strand Description	Grade Level Focus
College of Southern Idaho (CSI)		
Airplanes and Bridges for Today and Tomorrow	We will be experimenting with different airplane designs and trying them out with paper airplanes to determine which characteristics work best for a desired result. Then we will build a wind tunnel to determine drag and which designs have less drag. Building toothpick bridges will be the next activity to determine which design/construction is the strongest as well as aesthetically pleasing. Along the way we will be using the TI-Nspire CX to access interactive activities involving decimals, fractions, spreadsheets and graphs.	Grades 6-8
Science by Design	The focus of this strand will be: to explore foundational steps to engage students in science lessons, how to collect and analyze data, and finally how to guide students to internalize what they have learned. Teachers will learn an organizational format that will stimulate students' learning of science, enhance student skills in reading and writing aligned with science, and support applied math within a real world context. Oh… and have fun along the way.	Grades 4-9
Exploring Energy	This workshop pacing and sequence has been put together to provide participants with a comprehensive overview of energy sources, measurements, uses and the consequences of that use with lessons and activities that can be taken back to the classroom and used immediately. The lessons and activities are inquiry based with projects involving wind, electrical generation, photovoltaics, energy measuring and monitoring and rocketry.	Grades 3-10

BYOD - Bring Your Own Device Technology Strand	Turn those CLOUDS into sunny days. Upgrade your tablet, smart phone, pad, laptop, and desktop technology skills. Spend a week exploring the implementatio of a variety of technology instructional tools in education. Throughout the institute, you will learn to master, discover and evaluate applications applicable to your classroom setting, and create lessons incorporating the use of all devices; from prboes, camera, apps, adn many other fun adn exciting tools.	K-12
STEM, It All Adds Up!	STEM, It All Adds Up, delves into the mystery behind the eight math practice standards. Whatever your curriculum, these standards are a guide to good math instruction. They are the foundation for rich thinking and engaging instruction. Participants will learn how to incorporate these standards into their current curriculum. They will learn strategies, receive hands on activities, learn alternative methods for assessing student learning, and learn how to plan engaging instruction.	K-3
Nourishing the Planet in the 21st Century	The basics of life are food, water, and shelter. Feeding the world in the next 50 years will take a lot of workers and new technologies. Hands on materials (labs) and procedures that can be adapted to any classroom and any age will be provided. Modern technology will be used to create the 21st century classroom learning environments where careers and the high tech world of Agriculture can be explored.	Grades 8-12

Strand Name	Strand Description	Grade Level Focus
College of Western Idaho (CWI)		
Innovative real-world technology for students solving real problems	STEM workforce skill development, hard and soft skills, will be developed by students designing, building and implementing environmental sensing systems. Using Arduino microcontrollers and computer interface, students will accomplish basic computer programming, software-hardware communications, electronic design, wiring and data analytics. Additional skill development includes research design, problem solving, teamwork and technical presentation. This is a first step curricula product within a local and international STEM workforce and climate literacy program.	Grades 7-12
Probability and Statistics in Gaming	From simple dice rolling to casino games and board games and table top RPGs, probability and the idea of randomness is inundated with games. This strand uses these activities to introduce students to the basic rules and ideas behind probability and statistics and analyzes how games of all kinds use randomness and probability to add exciting and challenging gameplay for various audiences. Educators will leave this strand with a classroom set of materials that can easily be taken into the Secondary Mathematics classroom to help students to understand fundamental statistics principles.	Secondary Mathematics

Healthy Water Healthy People	Healthy Water Healthy People will provide participants with a better understand of their local water - where it comes from, how it gets to them, different ways we use it, where it goes from there and how it goes back into the natural cycle. We will also delve into people and their health, safety, and water use practices. How water is managed and allocated and the many ways an abundant and healthy water system is essential to our lives, livelihoods, culture and economies. Each participant will receive a water curriculum, a class activity kit and many local resources contacts.	Grades 4-6
Sparking a Passion for STEM - Integrating Inquiry & Engineering into hands-on STEM activities	This strand will include instruction in inquiry learning through hands-on activities to help teachers get students engaged in the classroom. Teachers will learn the hows and whys of facilitating grade-level appropriate, standards-aligned science and engineering activities in the physical sciences, including connections to project-based and cross-curricular lessons. The sessions will be facilitated by the Micron Foundation K-12 staff, content experts from Micron and a Master Teacher.	Grades 4-6
Birds Without Borders	Participants will 1) identify birds, 2) collect and analyze bird data, 3) build and monitor bird feeders and nesting boxes, 4) participate in citizen science, 5) learn about bird migration, and 6) evaluate and improve bird habitat. The field trips for this strand include going to the Boise River where songbirds will be caught using mist nets, identified, and banded and to Hyatt Wetlands to observe and identify birds.	Grades 6-12

Empowering the Next Generation Through Computer Science	Participants will learn how to teach computer science skills such as critical thinking, logic, persistence and creativity in problem-solving aligned to all subject areas. Computer science and computational thinking skills will be addressed through hands-on "unplugged" and online activities, including computer programming and coding. Additionally, participants will learn how to adapt their programs to create computers that can both sense and interact with their environment. Computer science curriculum provided by Code.org and MIT Media Lab will be utilized.	Grades K-8
Science and Our Food Supply	Science and Our Food Supply will use microbiology to explore the science behind our food supply and keeping it safe from the farm to the table. Participants will take with them labs and equipment to conduct those labs to teach there students about good and bad bacteria. Field trips to places where understanding microbiology is important are planned.	Grades 6-12
Energy for Future Citizens	Energy is the perfect topic to integrate across the subject silos! It plays a vital role in day-to-day lives and can be linked to every subject from the science and engineering of harnessing energy for human use to environmental impacts to socio-political-economic ramifications. In this strand, we'll start with basic experiments. Through discovery and discussion, you will learn the science behind how electrical generators work and leave with a hands-on working violin generator to illustrate electricity generation to students. Exploration of generation sources will include Solar, Wind, Nuclear, and Natural Gas. In the Global Trading Game, you will experience some of the complexities of the global energy system as you work with your team to trade resources to sustain your country. Middle and High School teachers will leave with the background knowledge necessary to engage students in	Grades 6-8, 9-12

Administrators Strand	Preparing the Twenty-First Century Administrator to meet local and global expectations utilizing the Integration of STEM in the common core environment. Leaders will be taught powerful methodologies, which enhance student learning, increase depth of understanding, and create an atmosphere of excitement in the learning process. Participants will do original research as well as look at the research and successes of others to determine how and when they will implement these core ideas and beliefs. Time will be spent learning how to use technology to improve the learning process as well as time on observing and documenting teachers as they learn these same important pieces of information. Cost: Each participant will be asked to pay an addition $100.00 to get their I-pad mini (16 GB) and a gift card for buying apps and accessories	All Administrators

Strand Name	Strand Description	Grade Level Focus
Eastern Idaho Technical College (EITC)		
STEM, It All Adds Up!	STEM, It All Adds Up, delves into the mystery behind the eight math practice standards. Whatever your curriculum, these standards are a guide to good math instruction. They are the foundation for rich thinking and engaging instruction. Participants will learn how to incorporate these standards into their current curriculum. They will learn strategies, receive hands on activities, learn alternative methods for assessing student learning, and learn how to plan engaging instruction.	K-3
UFO's	Given enough thrust almost anything will fly through the air. If you design an object to take advantage of lift and thrust you can create a truly remarkable flying object that will fly with attitude and altitude. Come join us in the adventure of flight and release the inner pilot in yourself and your students.	Grades 3-12
My Backyard and the Greater Yellowstone Ecosystem	Ecological concepts of the Greater Yellowstone Ecosystem will be used to investigate local back yard and/school yard ecosystems. Engineering design will be used to investigate environmental and wildlife forensics, population dynamics, role of biomimicry, data for understanding the role of predators and prey, mathematical patterns in nature and species adaptations to harsh environments. Activities will be created and modified at different levels for Grades 4-12. Lessons will be correlated with the common core, Idaho state standards and the NGSS.	Grades 4 -12

Nourishing the Planet in the 21st Century	The basics of life are food, water, and shelter. Feeding the world in the next 50 years will take a lot of workers and new technologies. Hands on materials (labs) and procedures that can be adapted to any classroom and any age will be provided. Modern technology will be used to create the 21st century classroom learning environments where careers and the high tech world of Agriculture can be explored.	Grades 8-12
Empowering the Next Generation Through Computer Science	Participants will learn how to teach computer science skills such as critical thinking, logic, persistence and creativity in problem-solving aligned to all subject areas. Computer science and computational thinking skills will be addressed through hands-on "unplugged" and online activities, including computer programming and coding. Additionally, participants will learn how to adapt their programs to create computers that can both sense and interact with their environment. Computer science curriculum provided by Code.org and MIT Media Lab will be utilized.	Grades K-8
I-Stem in High School Chemistry and Biology	This strand will provide teachers with a solid framework for integrating STEM into high school chemistry and biology classes. Every lesson will model a process for students to acquire information through discussion, problem solving and higher level thinking. Teachers will receive a kit with materials to duplicate labs in their classrooms for Cartesian divers, chromatography, Boyle's Law, Charles Law, Acids and Bases, Prokaryotes/Eukaryotes, and Photosynthesis. This will be an interactive class that models inquiry based learning with a lab activity to accompany every content topic.	Grades 10-12

Strand Name	Strand Description	Grade Level Focus
Idaho State University (ISU)		
Out of the Rock - Your Mineral Resources	Human ingenuity and our bountiful Earth have made mineral resources the foundation of modern civilization. This Strand is based on the popular Out of the Rock workshops and STEM is at its heart. Explore the process of mining. Experience science, technology and engineering at work throughout an active mine. Make the rock cycle and Earth's inner structure come alive. Create your own rock and mineral kit. See how to use Out of the Rock (OOTR) engaging materials and resources to help implement the Idaho Core Standards and 21st Century/Next Generation Science Standards practices in a STEM context in your 4th – 6th grade classroom.	Grades 4-6
In the News - Using Problem Based Learning to Teach Ecology	Problem-based learning (PBL) is an exciting way to learn ecology. PBL engages students in solving authentic ecological case problems, stimulating discussion among students and reinforcing learning. This strand will teach participants innovative ways to infuse STEM into PBL environmental education as we learn from local scientists about our native habitats, and threats to those habitats including invasive species, water pollution and drought, and decreases in biodiversity.	Grades 4-8
STEM on the Playground	No field trip money? No problem. We are going to have a great time learning how to utilize school playgrounds. What could be more fun than having class on the playground? In this strand we will be going on multiple, mini field trips to learn how to use school playgrounds and local parks to teach Science, Technology, Engineering and Math. Participants will learn by doing.	Grades 3-6

Innovative Concepts & Tools to Teach Nuclear Science, Energy, Safety, & Engineering	Explore innovative concepts and tools to teach nuclear science, energy, safety, and engineering principles. Get new ideas to help students understand radiation and the physics of energy from the nucleus of atoms. Preview The Harnessed Atom, a 10-lesson kit that engages students with hands-on experiments, interactive learning, and career opportunities. This workshop introduces The Harnessed Atom, a new energy and nuclear science STEM curriculum extension for middle school teachers and students from the U.S. Department of Energy. The teacher's kit includes a Teacher's Guide, Student Readers, pretest and post-test evaluation metrics, experiments and class activities, lecture presentations, a poster, video and historic film, interactive computer educational games, and evaluations for both teacher and students. The DOE Office of Nuclear Energy collaborated with hundreds of classroom teachers, our national laboratories, leading universities, leading state and national teacher associations, and innovative technology firms in the private sector to support science, technology, engineering, and math (STEM) education. The purpose of this teacher kit is to help students understand the energy	Grades 6-9, HS where appropriate

Administrators Strand	Preparing the Twenty-First Century Administrator to meet local and global expectations utilizing the Integration of STEM in the common core environment. Leaders will be taught powerful methodologies, which enhance student learning, increase depth of understanding, and create an atmosphere of excitement in the learning process. Participants will do original research as well as look at the research and successes of others to determine how and when they will implement these core ideas and beliefs. Time will be spent learning how to use technology to improve the learning process as well as time on observing and documenting teachers as they learn these same important pieces of information. Cost: Each participant will be asked to pay an addition $100.00 to get their I-pad mini (16 GB) and a gift card for buying apps and accessories	All Administrators

Strand Name	Strand Description	Grade Level Focus
Lewis and Clark State College (LCSC)		
The Earth System - Does it Include Us	This strand introduces the Earth as a global system of processes, the Earth System. The strand also asks: Are we part of this system? So the challenge will be to understand the Earth System well enough to decide whether we are part of it or not. We will think about how we interact with the Earth System from a local perspective, and globally. We'll break out subsystems and think about how we measure their effects and study their interactions. Finally, we will get to decide whether the Earth system includes us.	Grades 7-9
Probability and Statistics in Gaming	From simple dice rolling to casino games and board games and table top RPGs, probability and the idea of randomness is inundated with games. This strand uses these activities to introduce students to the basic rules and ideas behind probability and statistics and analyzes how games of all kinds use randomness and probability to add exciting and challenging gameplay for various audiences. Educators will leave this strand with a classroom set of materials that can easily be taken into the Secondary Mathematics classroom to help students to understand fundamental statistics principles.	Secondary Mathematics

Teaching Science by Design	The focus of this strand will be: to explore foundational steps to engage students in science lessons, how to collect and analyze data, and finally how to guide students to internalize what they have learned. Teachers will learn an organizational format that will stimulate students' learning of science, enhance student skills in reading and writing aligned with science, and support applied math within a real world context. Oh… and have fun along the way. Please Note: We have been asked to present at both Lewis Clark College and College of southern Idaho.	Grades 4-9
Project-Based Watershed Science	In this strand, The Confluence Project and IDAH2O will provide educators with the information and tools necessary to integrate project-based watershed science into their curriculum, including in-depth water quality and snow science knowledge; effective methods for guiding students to carry out their own long-term research projects; and advice on how to form and utilize partnerships within the community for field experiences, deeper content knowledge, and mentoring student research projects.	Grades 9-12

Administrators Strand	Preparing the Twenty-First Century Administrator to meet local and global expectations utilizing the Integration of STEM in the common core environment. Leaders will be taught powerful methodologies, which enhance student learning, increase depth of understanding, and create an atmosphere of excitement in the learning process. Participants will do original research as well as look at the research and successes of others to determine how and when they will implement these core ideas and beliefs. Time will be spent learning how to use technology to improve the learning process as well as time on observing and documenting teachers as they learn these same important pieces of information. Cost: Each participant will be asked to pay an addition $100.00 to get their I-pad mini (16 GB) and a gift card for buying apps and accessories	All Administrators

Strand Name	Strand Description	Grade Level Focus
North Idaho College (NIC)		
Elementary Robotics Integration	Participants use LEGO WeDo robotics to meet standards while motivating and engaging students through hands-on learning. WeDo allows students to explore programming and engineer working models. WeDo Robotics has cross-curricular activities designed for the elementary learner but can be modified to work at the middle level. Participants receive a WeDo kit, software and curriculum set. The LEGO curriculum provides complete lesson plans for science, math, literacy, and social studies making it easy to get started writing stories, solving problems, and creating innovative projects. It is recommended to take the strand in teams to have multiple kits to share for use in the classroom. In addition, grant writing and integration with Scratch will be covered.	Grades 1-6
Intro to Computer Coding and 3D Printing in the Classroom	Want to learn a modern foreign language? In this strand participants will learn to print designs on a 3D printer by writing computer code, or script, using programmer-oriented solid modeling software. In addition, instruction will include exposure to IPad apps for creating and printing 3D designs. Hands-on Learning, exploration, and CCSS alignment will be promoted while simultaneously emphasizing the importance of STEM and utilizing current technologies in the classroom.	Grades 5-9

Fundamentals of Inquiry	Do you want to incorporate more first-hand exploration and investigation into your science lessons? Do you want your students to become more productive problem-solvers in a scientific and technological world? If you answered Yes, then this strand is for you. This series of workshops will increase your awareness of inquiry learning/teaching, develop your skills in identifying and developing process and question skills, and best of all, you will leave with ready to go inquiry lessons in a variety of science content areas. Join us to learn more about inquiry or problem-based learning - a best practice, according to the NSTA.	Grades 4-6
Under Construction: Numeracy, Geometry, and Bridges	This strand is geared toward K-3 teachers with the Common Core Math Standards in numeracy and geometry driving the content. Participants will explore the four key ideas in numeracy as well as geometrical concepts in both plane and solid figures, developing appropriate vocabulary as they manipulate and explore various shapes. They will explore the use of literature in the development of concepts as well. After their initial work in these areas they will engage in activities that include: exploring bridges, holding the load and building bridges using the K'Nex Bridge system. They will integrate math, science, and technology as if they were the students in their own classrooms'.	Grades K-3
TGIF (STEM DAY)	Come and explore STEM related topics as we share ways to create STEM Friday in your class room. **Potential Topics**: household chemistry, senses, water, plants and playgrounds, engineering, introductory electronics. **Goal for the strand**: To teach teachers how to use Friday STEM days so students can explore (gain exposure), learn skills, and get excited.	Grades K-3

The Math and Ecology of Placer Mining	During the course of the Mining strand, students will learn how to build their mining equipment, locate a mining claim, use a global positioning system, use topographic maps, analyze mining's environmental impact, and calculate the profitability of a gold mine.	Grades 9-12